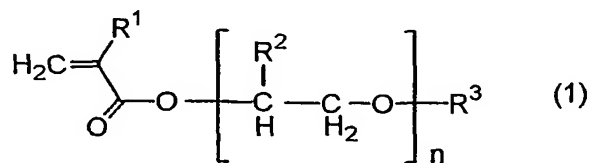


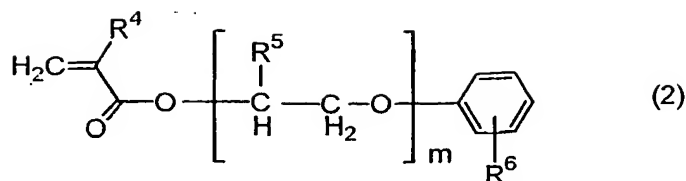
## CLAIMS

1. A carbon black dispersion composition for a color filter black matrix resist containing (A) a carbon black having an average primary particle diameter of 20 to 60 nm, a DBP oil absorption of 30 to 100 ml/100 g, a specific surface area by a BET method of 30 to 150 m<sup>2</sup>/g, and a concentration of carboxyl group on a particle surface of 0.2 to 1.0 μmol/m<sup>2</sup>, (B) a copolymer having an amino group and/or its quaternary ammonium salt, and (C) an organic solvent.

2. The carbon black dispersion composition for a color filter black matrix resist according to claim 1, wherein the copolymer (B) having an amino group and/or its quaternary ammonium salt is obtained by copolymerizing monomers (i), (ii) and (iii) below:  
 (i) 10 to 85 mass parts of at least one (meth)acrylate monomer selected from (a) a (meth)acrylic acid alkyl ester containing an alkyl group having 1 to 18 carbon atoms, (b) a (meth)acrylic acid ester represented by formula (1) below

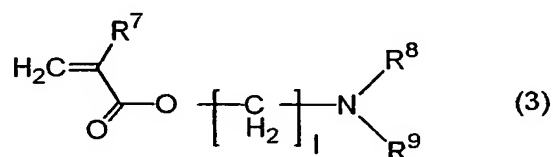


(in the formula, R<sup>1</sup> and R<sup>2</sup>, which may be the same or different, each represents a hydrogen atom or a methyl group, R<sup>3</sup> represents an alkyl group having 1 to 18 carbon atoms, n is an integer of 1 to 50), (c) a (meth)acrylic acid ester represented by formula (2) below

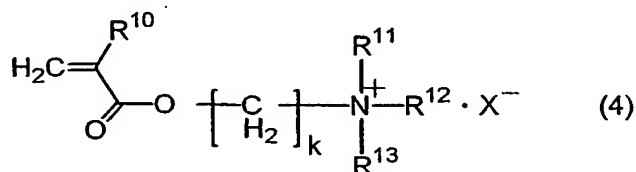


(in the formula,  $\text{R}^4$  and  $\text{R}^5$ , which may be the same or different, each represents a hydrogen atom or a methyl group,  $\text{R}^6$  represents an alkyl group having 1 to 18 carbon atoms,  $m$  is an integer of 1 to 50), and (d) a (meth)acrylic acid ester having a hydroxyl group,

(ii) 10 to 85 mass parts of an aminoalkyl (meth)acrylate monomer represented by formula (3) below



(in the formula,  $\text{R}^7$  represents a hydrogen atom or a methyl group,  $\text{R}^8$  and  $\text{R}^9$ , which may be the same or different, each represents an alkyl group having 1 to 6 carbon atoms,  $l$  is an integer of 2 to 8), and/or a quaternary ammonium (meth)acrylate monomer represented by formula (4) below



(in the formula,  $\text{R}^{10}$  represents a hydrogen atom or a methyl group,  $\text{R}^{11}$ ,  $\text{R}^{12}$  and  $\text{R}^{13}$ , which may be the same or different, each represents an alkyl group having 1 to 6 carbon atoms, a hydroxyalkyl group having 2 to 6 carbon atoms, an alkoxyalkyl group having 1 to 4 carbon atoms, a cycloalkyl group, an aralkyl group, a phenyl group, or a halogenated aryl group,  $\text{X}^-$  represents a halogen ion or an anion residue of an acid, and  $k$  is an integer of 2 to 8),

(iii) 5 to 80 mass parts of at least one selected from a polyalkyl (meth)acrylate macromonomer and a polystyrene macromonomer, having a (meth)acryloyl group at the terminal (provided that the total of (i) to (iii) is 100 mass parts).

5

3. The carbon black dispersion composition for a color filter black matrix resist according to claim 1 or 2, wherein the ratio of the carbon black (A) and the copolymer (B) having an amino group or its quaternary ammonium salt is (A) : (B) = 100 : 5 to 100 : 25 by mass ratio.

10

4. The carbon black dispersion composition for a color filter black matrix resist according to claim 1, wherein further comprising (D) a binder resin having a carboxyl group.

15

5. The carbon black dispersion composition for a color filter black matrix resist according to claim 1, wherein the dispersion is produced by using a continuous annular type bead mill.

20 6. A color filter black matrix resist composition comprising components (A), (B), (C), (D), (E), (F), and (G) below:

(A) a carbon black having an average primary particle diameter of 20 to 60 nm, a DBP oil absorption of 30 to 100 ml/100 g, a specific surface area by a BET method of 30 to 150 m<sup>2</sup>/g, and a concentration of carboxyl group on a particle surface of 0.2 to 1.0 μmol/m<sup>2</sup>,

25

(B) a copolymer having an amino group and/or its quaternary ammonium salt,

(C) an organic solvent,

30

(D) a binder resin having a carboxyl group,

(E) an ethylenically unsaturated monomer,

- (F) a photopolymerization initiator, and  
 (G) a multifunctional thiol compound having two or more mercapto groups.

5 7. The color filter black matrix resist composition according to claim 6, wherein the components other than the organic solvent (C) are contained in the following ratios:

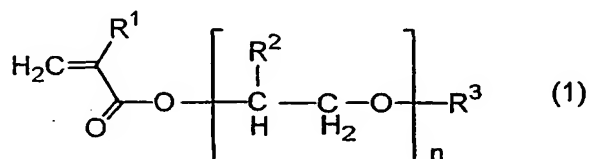
(A) 40 to 80 mass%, (B) 4 to 50 mass%, (D) 10 to 50 mass%, (E) 3 to 45 mass%, (F) 2 to 45 mass%, and (G) 2 to 45 mass%.

10

8. The color filter black matrix resist composition according to claim 6, wherein the copolymer (B) having an amino group and/or its quaternary ammonium salt is a (meth)acrylic copolymer having a number average molecular weight of 4,000 to 100,000 obtained by copolymerizing monomers (i), (ii), and (iii) below:

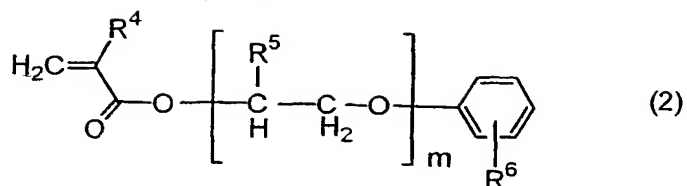
15 (i) 10 to 85 mass parts of at least one (meth)acrylate monomer selected from (a) a (meth)acrylic acid alkyl ester containing an alkyl group having 1 to 18 carbon atoms, (b), a (meth)acrylic acid ester represented by formula (1) below

20



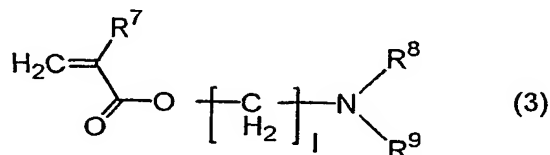
(in the formula, the symbols in the formula have the same meanings as defined in claim 2), (c) a (meth)acrylic acid ester represented by formula (2) below

25

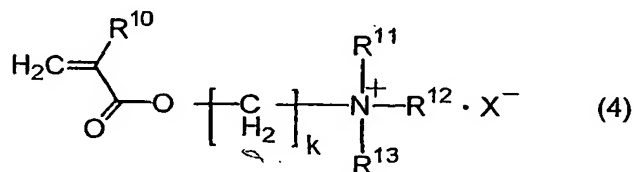


(in the formula, the symbols have the same meanings as those in claim 2), and (d) a (meth)acrylic acid ester having a hydroxyl group,

- 5 (ii) 10 to 85 mass parts of an aminoalkyl (meth)acrylate monomer represented by formula (3) below



- 10 (in the formula, the symbols have the same meanings as those in claim 2), and/or a quaternary ammonium (meth)acrylate monomer represented by formula (4) below



(in the formula, the symbols have the same meanings as those in claim 2),

- 15 (iii) 5 to 80 mass parts of at least one selected from a polyalkyl (meth)acrylate macromonomer and a polystyrene macromonomer, having a (meth)acryloyl group at the terminal (provided that the total of (i) to (iii) is 100 mass parts).

9. The color filter black matrix resist composition according to claim 8, wherein the binder (D) having a carboxyl group has further an ethylenically unsaturated group.